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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/100,595 06/19/98 BIGUS

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EXAMINER

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ART UNIT PAPER NUMBER

2762

*13*

DATE MAILED:

02/04/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. <b>09/100,595</b>	Applicant(s) <b>BIGUS, Joseph Phillip et al.</b>
	Examiner <b>Wilbert L. Starks, Jr.</b>	Group Art Unit <b>2762</b>

Responsive to communication(s) filed on Dec 7, 1999.

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 30-32, 36-45, and 47-80 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 30-32, 36-45, and 47-80 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2762

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

the invention as disclosed in claims 49-80 is directed to non-statutory subject matter. While the claims are in the technological arts, they are not limited to practical applications in the technological arts.

Specifically, the claims are a series of steps to be performed on a computer, but they disclose ideas disclosed abstractly from any particular practical application.

To Constitutionally interpret the word “process”, the Supreme Court has held that:

“\*\*\* A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing. \*\*\* The process requires that *certain things* should be done with *certain substances*, and in a *certain order*; but the tools to be used in doing this may be of secondary consequence.” (emphasis added) *Diamond, Commissioner of Patents and Trademarks v. Diehr and Lutton*, 209 USPQ 1, 6 (1981) quoting *Cochrane v. Deener*, 94 U.S. 780, 787-788 (1876).

This Constitutional interpretation of the word “process” is a long-standing one that the Supreme Court requires to be applied in interpreting 35 USC 101. *Diamond v. Diehr* at 6.

Art Unit: 2762

Consequently, the use of that interpretation is *Constitutionally required* when we interpret the Federal Circuit's standard that a "new and useful *process*" is one that produces a "useful, concrete, and tangible result". cf. *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 47 USPQ2d 1596, 1600-1601 (Fed. Cir. 1998).

Applicant discloses no "certain substances" in the sense that Applicant's claims disclose no *specific* computer-readable medium, no manipulation of *specific* data representing physical objects or activities (pre-computer activity), nor do they disclose any *specific* independent physical acts being performed by the invention (post-computer activity).

The claims merely manipulate abstract ideas in general without limitation to a practical application where "certain substances" are transformed or reduced.

2. On this basis, claims 49-80 are rejected under 35 USC 101.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Art Unit: 2762

4. Claims 30-32, 36-45, 47-60, 62-74, and 76-80 are rejected under 35 U.S.C. 102(e) as being anticipated by Atkins (U.S. Patent Number 5,875,437; Dated 02/23/99; Class 705; Subclass 40.)

#### Claim 30

5. Claim 30's "intelligent agent", and "autonomy" for the agent, are all anticipated by Atkins, col. 9, lin. 30-39; col. 29, lin. 34.

#### Claims 31 and 32

Claim 31's transmission type signal bearing media is anticipated by Atkins, col. 30, lin. 45-67.

Claim 32's recordable signal bearing media is anticipated by Atkins, col. 30, lin. 45-67.

#### Claim 36

Claim 36's "evaluation module" is anticipated by Atkins, fig. 16, element 830.

#### Claim 37, 56, and 66.

Claim 37, 56, and 66's "reinforcement learning module coupled to the evaluation module - it adaptively selects program modules based upon the performance of the plurality of program modules in handling the computer task" is anticipated by The "reinforcement learning" step is anticipated by Atkins, col 29, lin 22-23. Inherent in "genetic learning techniques" is the step of

Art Unit: 2762

evaluating the performances of each of the evolving programs and selecting those that perform the best. The selection of the fittest of the generations is a form of “reinforcement learning” in that what ever that particular program was doing that was right is rewarded and “reinforced” Mitchell, Melanie, An Introduction to Genetic Algorithms, The MIT Press, Cambridge, Massachusetts, 1996, pages 85-109.

### Claim 39

Claim 39's “evaluation module steps:”

“Retrieve information for a selected computer task;” is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 95. “determine a selected value for the selected computer task;” is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 96.

“select as the selected program module one of the plurality of program modules which is matched with the selected value of the objective criteria;” is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91.

### Claim 40, 53, and 69.

Claim 40, 53, and 69's “evaluation module is implemented in an agent manager” is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as

Art Unit: 2762

shown in Mitchell, page 96. This step is also inherent in the genetic programming art. Koza, John R., page 77(step (2)(a)).

#### Claim 41 and 70

Claim 41 and 70's "evaluation module is implemented in an intelligent agent" is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 95 and Koza, John R., page 77(step (2)(a)).

#### Claim 42, 50, and 71

The following steps are inherent in the art:

The intelligent agent "includes only" (comprises?/consists of?) the selected program module from the plurality of program modules; is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91. It is also known as "selecting the best of the generation." This step is also inherent in the genetic programming art. Koza, John R., page 77(step (3)).

The evaluation module therein constructs the intelligent agent using the selected program module is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 96. This step is also inherent in the genetic programming art. Koza, John R., page 77(step (3)).

Art Unit: 2762

**Claim 43, 51, and 72**

The intelligent agent including each of the plurality of program modules; is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, pages 95-100. This step is also inherent in the genetic programming art. Koza, John R., page 77(step (3)).

The evaluation module executes only the selected program module to handle the computer task is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91. This step is also inherent in the genetic programming art. Koza, John R., page 77(step (3)).

**Claim 44, 54, and 73**

The plurality of program modules are additive program modules; is a limitation that is inherent in the art. Koza, John R., page 343. The agents in that example are simulating ants and were asked to solve the problem of what to do if they found food that was so far away from the nest that the pheromone trail back to the food would decay before they returned. The agents solved the problem by using a “bucket brigade”-type strategy so that the pheromone trail stayed intact for each segment of the “bucket brigade.” As in the claimed invention, these agents cooperated and are “additive program modules.” This textbook example is inherent in the art.

Art Unit: 2762

The evaluation module selects a subset of the plurality of program modules to handle the computer task is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91 and Koza, John R., page 343.

Claim 45, 55, and 74

The plurality of program modules are alternative program modules, and is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, pages 95-100 and Koza, John R., page 91.

The evaluation module selects only one of the plurality of program modules to handle the computer task is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91. This step is also known as “selecting the best of the generation.” This step is also inherent in the genetic programming art. Koza, John R., page 77(step (3)).

Claim 47, 62, and 76

The plurality of program modules includes a semi-autonomous program module, a fully autonomous program module, and a fully dependent program module is anticipated by Atkins, col 33, lin 1-11. The different levels of authorization show different levels of independence for the agents.

Art Unit: 2762

Claim 48, 63, 77, 79, and 80

The objective criteria “includes” a risk that a dispatched agent is subjected to in negotiations is anticipated by Mitchell, page 105 (showing inherency) and Atkins, col 34, lin 19-27 and col. 29, lin. 34-46.

Claim 49, 64, and 78.

Claim 49's, 64's, and 78's “intelligent agent”, “autonomy” for the agent, and are all anticipated by Atkins, col. 9, lin. 30-39; col. 29, lin. 34.

Claim 52

The selecting step is performed by the intelligent agent” is anticipated by Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91. This step is also inherent in the genetic programming art. Koza, John R., page 77(step (3)). The disclosure in Koza is broad enough to include the implementation of the “selecting step” via the agent itself. In fact, in order to have a truly autonomous and mobile agent, one must include this step as a facility local to the agent so it can adapt to situations in real-time. The only alternative is the establishment of support sites the agent would have to go to every time it needed to perform the task. This is a truly unreasonable expense for such a simple task that in all common sense from the engineering standpoint should be performed locally with the agent.

Art Unit: 2762

Claim 57

Obtaining performance information relating to the performance of the selected program module in handling the computer task; This step is Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 96 and Koza, John R., page 77(step (2)(a)).

Supplying the performance information to the reinforcement learning algorithm. This step is Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 95, It is the creation of a “fitness measure.” Kola, John R., page 77(step (2)(a)).

Claim 59, 65, and 68.

Matching each of the plurality of program modules with a value of the objective criteria; determining a selected value of the objective criteria;

Selecting as the selected program module a program module matching the selected value of the objective criteria. This step is Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91. It is the creation of a “fitness measure.” Kola, John R., page 77(step (2)(a)).

Claim 60

The selecting step further includes the step of retrieving information for a selected computer task; Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art

Art Unit: 2762

as shown in Mitchell, page 91. It is the creation of a "fitness measure." Kola, John R., page 77(step (2)(a)).

The determining step determines the selected value of the objective criteria using the retrieved information. Atkins, col 29, lin 22-23 because this step is inherent in the genetic algorithm art as shown in Mitchell, page 91. It is the creation of a "fitness measure." Kola, John R., page 77(step (2)(a)).

On these bases, Claims 30-32, 36-45, 47-60, 62-74, and 76-80 are rejected under 35 U.S.C. 102(e) as being anticipated by Atkins (U.S. Patent Number 5,875,437; Dated 02/23/99; Class 705; Subclass 40.) Some of the claimed features of the invention are shown to be clearly inherent in the art by pointing out the state of the art in the textbook by Mitchell, Melanie, *An Introduction to Genetic Algorithms*, The MIT Press, Cambridge, Massachusetts, 1996, pages 95-100. Since not all of the changes to the rejections in this action were prompted by amendments and were made to better clarify the state of the art at the time the claimed invention was made, this action is **NON-FINAL**.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (703) 305-0027. Alternatively, inquiries may be directed to Supervising Patent Examiner Tariq Hafiz whose telephone number is (703) 305-9643.



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